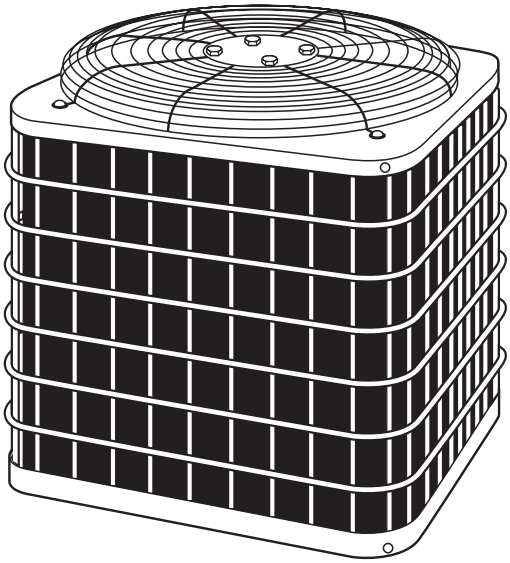
MODEL PH13 SERIES C
SPLIT-SYSTEM HEAT PUMP UNIT
1 AND 3 PHASE
1-1/2 THRU 5 TON (018-060)

Product Data



FEATURES

AVAILABLE SIZES: Nominal sizes are available from 018 through 060 to meet the needs of residential and light commercial applications.

EFFICIENCY: These heat pump systems provide economy of operation through energy conservation. They recover heat for indoor comfort from outdoor air during the heating season and, by automatically reversing the refrigerant system, remove indoor heat and excess humidity during the cooling season.

CERTIFICATION: All models are listed with UL (U.S. and Canada), ARI, and CEC. The quality systems of this facility have been Registered by UL to the ISO 9000 Series Standards.

ELECTRICAL RANGE: All units are offered in 208/230v, single phase, with three-phase models in 048 and 060 sizes.

FAN MOTOR: The totally enclosed fan motor means greater reliability under rain conditions and dependable performance for many years. Permanent split capacitor type motors provide more economical operation.

CABINET: A weather protective cabinet of prepainted steel is protected underneath by a galvanized coating and treated with a layer of zinc phosphate for a finish that will last for many years. All screws on cabinet exterior are coated for a long-lasting, rust-resistant, quality appearance.

UNIT DESIGN: The copper tube, enhanced sine wave, aluminum fin coil is designed for optimum heat transfer. Vertical air discharge carries sound and hot condenser air up and away from adjacent patio areas and foliage. The base pan is designed for easy removal of water, dirt, and leaves.

COMPONENTS: Includes a suction-tube accumulator that minimizes the amount of liquid refrigerant reaching the compressor; a low-pressure switch that stops the compressor if refrigerant charge is lost; a crankcase heater to keep the compressor oil warm and free of refrigerant for maximum lubricity (060 size); an internal compressor relief valve on 030-060 sizes.

DEFROST CONTROL BOARD: Incorporates a defrost relay, defrost timer, and low-voltage terminations. The defrost control is a time/temperature initiation/termination control which includes 3 field-selectable time periods of 30, 60, and 90 minutes.

COMPRESSOR: Designed specifically for heat pump duty, with energy efficiency during heating and cooling operation. Each compressor is hermetically sealed against contamination to assure long life and dependable performance and externally mounted on rubber isolators for quiet operation. Continuous compressor operation is approved down to –30°F (–34.4°C) in the heating mode and down to 55°F (12.8°C) in the cooling mode. (See heating and cooling performance tables.) For improved serviceability, all models are equipped with a compressor terminal plug.

SERVICE VALVES: Both service valves are brass, front seating type with sweat connections. Valves are externally located so refrigerant tube connections can be made quickly and easily. Each valve has a service port for ease of checking operating refrigerant pressures.

SERVICEABILITY: One access panel provides access to electrical controls. Removal of top gives access to fan motor, compressor, and condenser coil.

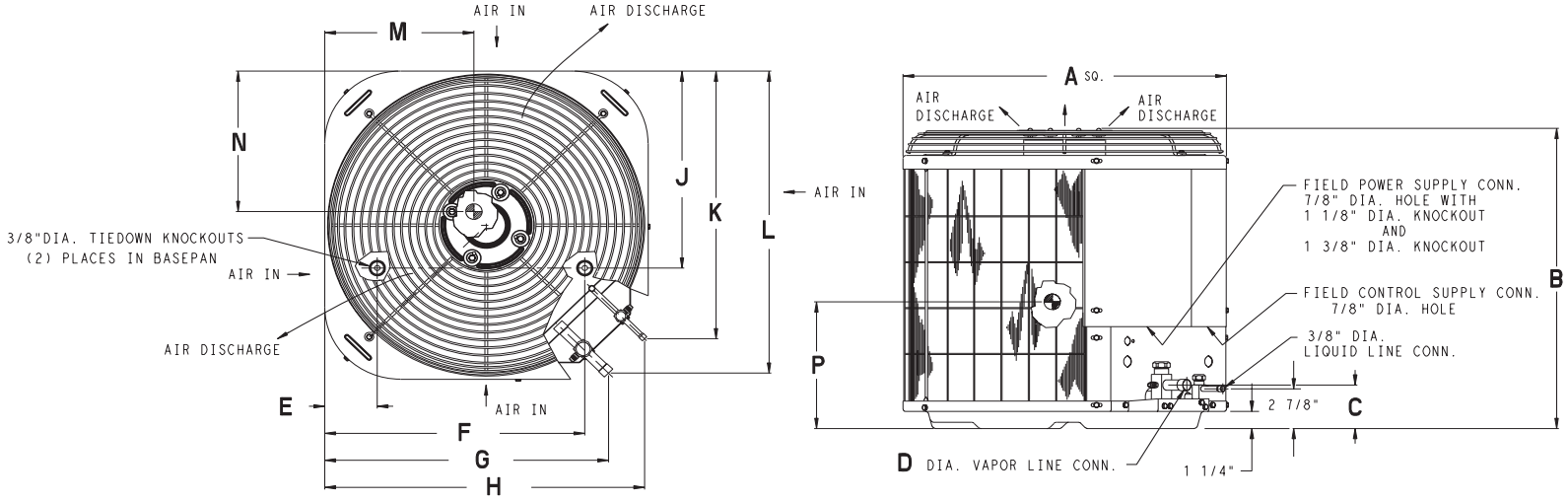
LIMITED WARRANTY: Single phase: 5 years on parts and 5 years on compressor. Three phase: 1 year on parts and 5 years on compressor.

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	H	J	K	L	M	N	P	SHIPPING WEIGHT
PH13NR018	C	X	0	0	0	22 1/2 "	33 15/16"	3 3/16"	5/8"	3 11/16"	18 1/8"	19 3/4"	21 5/8"	14 3/8"	18 7/8"	22 1/16"	10 3/4"	11"	14 1/2"	123#
PH13NR024	C	X	0	0	0	30"	27 15/16"	3 3/16"	3/4"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	11 3/4"	171#
PH13NR030	C	X	0	0	0	30"	33 15/16"	3 3/16"	3/4"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	14 1/2"	187#
PH13NR036	C	X	0	0	0	30"	33 15/16"	3 3/16"	3/4"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	14 1/2"	187#
PH13NR042	C	X	0	0	0	30"	29 15/16"	3 1/4"	7/8"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	14 1/4"	214#
PH13NR048	C	X	0	0	0	30"	33 15/16"	3 1/4"	7/8"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	14 1/2"	255#
PH13PR048	C	0	0	X	0	30"	33 15/16"	3 1/4"	7/8"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	14 1/2"	255#
PH13NR060	C	X	0	0	0	30"	43 15/16"	3 1/4"	7/8"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	15 1/2"	283#
PH13PR060	C	0	0	X	0	30"	43 15/16"	3 1/4"	7/8"	6 1/2"	23 1/2"	27 1/4"	29 1/8"	20"	26 3/8"	29 9/16"	15 1/2"	14"	15 1/2"	283#
		208/230-1-60	230-1-60	208/230-3-60	460-3-60															

X=YES
O=NO

NOTES:

1. ALLOW 30" CLEARANCE TO SERVICE SIDE OF UNIT, 48" ABOVE UNIT, 6" ON ONE SIDE, 12" ON REMAINING SIDE, AND 24" BETWEEN UNITS FOR PROPER AIRFLOW.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 55°F, MAX. 125°F.
3. MAXIMUM OUTDOOR OPERATING AMBIENT IN HEATING MODE IS 66°F.
4. SERIES DESIGNATION IS THE 14TH POSITION OF THE UNIT MODEL NUMBER.
5. CENTER OF GRAVITY ⊕ .
6. OPTIONAL DENSE GRILLE SHOWN IN DRAWING.



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18	22 1/2" X 22 1/2"
24,30,36,42,48,60	30" X 30"

PART NUMBER	SHT	REV
SD4488-4	1	1.0
NEXT SHEET NONE		

SPECIFICATIONS

UNIT SIZE-SERIES	018-C	024-C	030-C	036-C
ELECTRICAL				
Unit Volts—Phase—Hertz	208/230—1—60			
Operating Voltage Range	187—253			
Unit Ampacity for Wire Sizing (MCA)	13.8	16.1	22.0	23.4
Min Wire Size (60°C/75°C Copper) (AWG)*	14/14	12/12	10/10	10/10
Maximum Length (60°C/75°C) (Ft)†	56/54	74/70	91/86	83/79
Max Branch Circuit Fuse Size (Amps)‡	20	25	30	35
Compressor Rated Load Amps	10.6	12.0	16.7	17.8
Locked Rotor Amps	45.0	54.0	72.5	88.0
Fan Motor HP and RPM	1/12 and 1100	1/5 and 825		
Full Load Amps	0.5	1.1		
COMPRESSOR AND REFRIGERANT				
Compressor Type	Scroll			
Refrigerant Charge (Lb)	5.50	6.25	6.88	8.00
Refrigerant Tubes (In. OD) Vapor and Liquid (Up to 80 Ft)	5/8 3/8	3/4 3/8	3/4 3/8	
OUTDOOR COIL AND FAN				
Coil Face Area (Sq Ft)	12.42	14.80	18.87	
Rated Airflow (CFM)	1700	2800		
OPTIONAL EQUIPMENT				
Time-Delay Relay	KAATD0101TDR			
Outdoor Thermostat	KHAOT0301FST			
Secondary Outdoor Thermostat	KHAOT0201SEC			
Cycle Protector	KSACY0101AAA			
Crankcase Heater	KAACH1401AAA		KAACH1201AAA	
Compressor Start Assist—Capacitor/Relay	KSAHS1501AAA			
Sound Hood	KSASH1801COP		KSASH0601COP	
TXV Kits (Hard Shutoff)	KSATX0601HSO			
Low Pressure Switch	Standard			
High-Pressure Switch	KHAHI0101HPS			
Low-Ambient Pressure Switch***	KSALA0201R22			
MotorMaster®—Low-Ambient Controller†††	KSALA0401AAA			
Ball Bearing Fan Motor	HC34GE232	HC38GE231		
Liquid Line Filter Drier (RCD)	KHA45LD065			
Evaporator Freeze Thermostat‡‡	KAAFT0101AAA			
Isolation Relay‡‡	KHAIR0101AAA			
Liquid Solenoid Valve	KHALS0401LLS			
Thermostat, Manual Changeover, Non-Programmable, °F/°C, 2-Stage Heat, 1-Stage Cool	TSTATPPBHP01-B			
Thermostat, Auto Changeover, 7-Day Programmable, °F/°C, 1-Stage Heat, 1-Stage Cool	TSTATPPSHP01			
Outdoor Sensor (For Programmable Thermostat)	TSTATXXSEN01-B			
Backplate for Non-Programmable Thermostat	TSTATXXBBP01			
Backplate for Programmable Thermostat	TSTATXXPBP01			

See notes on page 4.

SPECIFICATIONS Continued

UNIT SIZE-SERIES	042-C	048-C		060-C	
ELECTRICAL					
Unit Volts—Phase—Hertz	208/230—1—60	208/230—1—60	208/230—3—60	208/230—1—60	208/230—3—60
Operating Voltage Range	187—253				
Unit Ampacity for Wire Sizing (MCA)	30.1	31.0	19.5	32.7	23.0
Min Wire Size (60°C/75°C Copper) (AWG)*	8/8	8/8	14/14	8/8	12/12
Maximum Length (60°C/75°C) (Ft)†	100/95		39/37	94/90	55/52
Max Branch Circuit Fuse Size (Amps)‡	50	50	30	50	35
Compressor Rated Load Amps	23.2	23.9	14.7	25.0	17.3
Locked Rotor Amps	104.0	137.0	91.0	150.0	123.0
Fan Motor HP and RPM	1/5 & 825			1/4 & 1100	
Full Load Amps	1.1			1.4	
COMPRESSOR AND REFRIGERANT					
Compressor Manufacturer	Scroll				
Refrigerant Charge (Lb)	10.38	11.13		18.19	
Refrigerant Tubes (In. OD) Vapor and Liquid (Up to 80 Ft)	7/8 3/8			1-1/8	
OUTDOOR COIL AND FAN					
Coil Face Area (Sq Ft)	16.03	18.50		24.66	
Rated Airflow (CFM)	2800			3400	
OPTIONAL EQUIPMENT					
Time-Delay Relay	KAATD0101TDR				
Outdoor Thermostat	KHAOT0301FST				
Secondary Outdoor Thermostat	KHAOT0201SEC				
Cycle Protector	KSACY0101AAA				
Crankcase Heater	KAACH1201AAA			Standard	
Compressor Start Assist—Capacitor/Relay	KSAHS1501AAA	KSAHS1701AAA	N/A	KSAHS1601AAA	N/A
Sound Hood	KSASH0601COP			KSASH2101COP	
TXV Kits (Hard Shutoff)	KSATX0601HSO	KSATX0701HSO		KSATX1001HSO	
Low-Pressure Switch	Standard				
High-Pressure Switch	KHAHI0101HPS				
Low-Ambient Pressure Switch***	KSALA0201R22				
MotorMaster®—Low-Ambient Controller†††	KSALA0401AAA				
Ball Bearing Fan Motor	HC38GE231			HC40GE232	
Liquid Line Filter Drier (RCD)	KH43LE062				
Evaporator Freeze Thermostat‡‡	KAAFT0101AAA				
Isolation Relay‡‡	KHAIR0101AAA				
Liquid Solenoid Valve	KHALS0401LLS				
Thermostat, Manual Changeover, Non-Programmable, °F/°C, 2-Stage Heat, 1-Stage Cool	TSTATPPBHP01-B				
Thermostat, Auto Changeover, 7-Day Programmable, °F/°C, 1-Stage Heat, 1-Stage Cool	TSTATPPSHP01				
Outdoor Sensor (For Programmable Thermostat)	TSTATXXSEN01-B				
Backplate for Non-Programmable Thermostat	TSTATXXBBP01				
Backplate for Programmable Thermostat	TSTATXXPBP01				

* The ampacity of non-metallic (NM) sheathed cable shall be that of 60°C (140°F) conductors per NEC 1999, Article 336-26. If wire used is other than specified in chart, refer to applicable tables available in 1999 NEC. Copper wire must be used from disconnect to unit.
† Length shown is as measured 1 way along the wire path between the unit and the service panel for a voltage drop not to exceed 2%.
‡ Units may use fuses or circuit breakers (U.S. only).
‡‡ Consult low-ambient control Installation Instructions for application.
*** Isolation relay required.
††† Fan motor with ball bearings required.

RECOMMENDED TUBE DIAMETERS

UNIT SIZE	TUBE LENGTH (Ft)*	LIQUID TUBE DIAMETER (In.)	VAPOR TUBE DIAMETER (In.)
018	0 to 80	3/8	5/8
024, 030, 036			3/4
042, 048			7/8
060			1-1/8

* For tube set over 80 ft horizontal and/or 20 ft vertical differential, consult Residential Split System Long-Line Application Guidelines.

METERING DEVICE

UNIT SIZE	SERIES	OUTDOOR PISTON	INDOOR METERING DEVICE	REQUIRED SUBCOOLING
018	C	42	TXV*	10
024	C	52	TXV*	10
030	C	55	TXV*	10
036	C	61	TXV*	10
042	C	65	TXV*	10
048	C	73	TXV*	10
060	C	78	TXV*	10

* Hard shutoff TXV must be installed when indoor coil is not equipped with a TXV.

A-WEIGHTED SOUND POWER (dBA)

UNIT SIZE–SERIES	STANDARD RATING	TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018-C	76	53.0	59.0	64.5	69.5	62.0	59.0	56.5
024-C	78	56.0	62.0	66.0	70.5	66.5	59.0	55.0
030-C	78	56.0	63.5	67.5	72.0	66.0	63.0	58.5
036-C	80	53.5	61.0	66.0	71.0	67.0	62.5	60.0
042-C	80	53.0	64.5	68.0	73.0	69.5	67.5	62.0
048-C	80	61.5	60.0	67.0	72.0	69.5	65.5	60.0
060-C	80	58.5	65.0	71.5	74.0	73.5	70.0	64.5

MODEL NUMBER NOMENCLATURE

PH13 N R 018 000 A C AA

Variations

Series

Variations
A — Standard Unit
G — Dense Grille

Heating Capacity

Nominal Cooling Capacity
018 – 1-1/2 ton
024 – 2 ton
030 – 2-1/2 ton
036 – 3 ton
042 – 3-1/2 ton
048 – 4 ton
060 – 5 ton

Type of Unit
PH13 – Electric Heat Pump

Electrical Supply
N — 208/230-1-60
P — 208/230-3-60

Refrigerant–R22

ISO 9001:2000

OPTIONAL EQUIPMENT USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW-AMBIENT APPLICATIONS (Below 55°F)	REQUIRED FOR LONG-LINE APPLICATIONS* (Over 80 Ft)
Crankcase Heater	Yes	Yes
Evaporator Freeze Thermostat	Yes	No
Accumulator	No	No
Compressor Start Assist Capacitor and Relay	Yes	Yes
MotorMaster®—Low-Ambient Controller	Yes	No
Wind Baffle	See Low-Ambient Instructions	No
Liquid-Line Solenoid Valve or Hard Shutoff TXV	No	See Long-Line Application Guideline
Ball Bearing Fan Motor	Yes	No

* For tubing line sets between 80 and 175 ft, refer to Residential's Split Systems Long-Line Application Guidelines.

OPTIONAL EQUIPMENT DESCRIPTION AND USAGE (Listed Alphabetically)

1. **Ball-Bearing Fan Motor**
   A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.
   Usage Guideline:
   Required on all units when MotorMaster®—Low-Ambient Controller is installed.

2. **Compressor Crankcase Heater**
   An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.
   Note: Some heat pumps are factory supplied with a crankcase heater. See accessory list for units that come standard with a crankcase heater. For units that do not, use the guideline below.
   Usage Guideline:
   Required in low ambient cooling applications.
   Required in long line applications.
   Suggested in all commercial applications.

3. **Compressor Start Assist – Capacitor and Relay**
   Start capacitor and relay gives a "hard" boost to compressor motor at each start up.
   Usage Guideline:
   Required for single-phase reciprocating compressors in the following applications:
   - Long line
   - Low ambient cooling
   - Hard shut off expansion valve on indoor coil
   - Liquid line solenoid on indoor coil

   Required for single-phase scroll compressors in the following applications:
   - Long line
   - Low ambient cooling

   Suggested for all compressors in areas with a history of low voltage problems

4. **Compressor Start Assist – PTC Type**
   Solid-state electrical device which gives a "soft" boost to the compressor motor at each start up.
   Usage Guideline:
   Suggested when compressor power supply is marginal.
   Suggested in reciprocating compressor applications with rapid pressure balance (RPB) expansion valve on indoor coil.

5. **Compressor Sound Hood**
   Wraparound sound reducing cover for the compressor. Reduces the sound level by about 2 dBA.
   Usage Guideline:
   Suggested when unit is installed closer than 15 ft to quiet areas—bedrooms, etc.
   Suggested when unit is installed between two houses less than 10 ft apart.

6. **Cycle Protector**
   Solid-state timing device which prevents compressor rapid recycling. This control provides an approximate 5-minute delay after power to the compressor has been interrupted for any reason, including normal room thermostat cycling.
   Usage Guideline:
   Suggested in the following applications:
   - Installations in areas where power interruptions are frequent.
   - Where user is likely to "play" with the room thermostat.
   - All commercial installations.
   - Long line applications.
   - High-rise applications.

7. **Evaporator Freeze Thermostat**
   An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.
   Usage Guideline:
   Required when low-ambient kit has been added.

OPTIONAL EQUIPMENT DESCRIPTION AND USAGE (Listed Alphabetically) Continued

8. **Filter Drier**
A device for removing contaminants from refrigerant circulating in a heat pump system: two-direction flow.
Usage Guideline:
Suggested in all field-connected split-system heat pumps.

9. **High-Pressure Switch**
Auto reset SPST switch activated by refrigerant pressure on high side of refrigerant circuit. Cycles compressor off if refrigerant pressure rises to 426 ± 10 psig and resets at 320 ± 20 psig. Provides protection against compressor damage due to loss of outdoor airflow.
Usage Guideline:
Suggested in installations exposed to "very dirty" outdoor air.
Suggested in installations where condenser inlet air temperature exceeds 125°F (51.7°C).

10. **Isolation Relay**
An SPDT relay which switches the low-ambient controller out of the outdoor fan motor circuit when the heat pump switches to heating mode.
Usage Guideline:
Required in all heat pumps where low-ambient kit has been added.

11. **Liquid-Line Solenoid Valve (LLS)**
An electrically operated shutoff valve which stops and starts refrigerant liquid flow in response to compressor operation. It maintains a column of refrigerant liquid ready for action at next compressor operation cycle. It also provides system protection against off-cycle refrigerant migration.
Note: When LLS is used with reciprocating compressors, Compressor Start Assist — Capacitor and Relay is required.
Usage Guideline:
Required in all heat pump long line applications to control refrigerant off cycle migration in the heating mode. A second LLS or hard shut off TXV is required in heat pump long line applications for refrigerant off cycle migration in the cooling mode. See Long Line Application Guideline.

12. **Low-Ambient Pressure Switch**
A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits (approximately 100 psig to 225 psig). The control will maintain working head pressure at low-ambient temperatures down to 0°F (–17.8°C) when properly installed.
Usage Guideline:
A Low-Ambient Pressure Switch or MotorMaster ®—Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

13. **MotorMaster®—Low-Ambient Controller**
A fan speed control device activated by a temperature sensor. Designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to –20°F (–28.9°C), it maintains condensing temperature at 100°F ± 10°F (37.8°C ± –12°C).
Usage Guideline:
A MotorMaster ®—Low-Ambient Controller or Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).
Suggested for all commercial applications.

14. **Outdoor Air Temperature Sensor**
Designed for use with Thermostats listed in this publication. This device enables the thermostat to display the outdoor temperature. This device also is required to enable special thermostat features such as auxiliary heat lock out.
Usage Guideline:
Suggested for all thermostats listed in this publication.

15. **Outdoor Thermostat**
An SPDT temperature-actuated switch which turns on supplemental electric heaters when outdoor air temperature drops below a user-selected set point.
Usage Guideline:
Electric supplemental heat applications in non-variable speed indoor units when electric heat staging is desired.

16. **Secondary Outdoor Thermostat**
An SPDT temperature-actuated switch which turns on third-stage of supplemental electric heaters when outdoor air temperature drops below the second-stage set point.
Usage Guideline:
Outdoor Thermostat applications where electric heater is capable of 3-stage operation.

17. **Thermostatic Expansion Valve (TXV) Bi-Flow**
A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator. Kit includes valve, adapter tubes, and external equalizer tube. Both hard shutoff and RPB valves are available.
Note: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist — Capacitor and Relay is required
Usage Guideline:
Required to achieve ARI ratings in certain equipment combinations. Refer to combination ratings.
Required for use on all zoning systems.
See long line guideline.

18. **Time-Delay Relay**
An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.
Note: Most indoor unit controls include this feature. For those that do not, use the guideline below.
Usage Guideline:
For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to ARI Unitary Directory.

COMBINATION RATINGS

OUTDOOR UNIT SIZE	INDOOR UNIT	ARI STANDARD RATINGS†								
		Cooling				Heating				
		SEER				High-Temp		Low-Temp		
		TC	Factory-Supplied Enhance-ment	Standard Rating	EER	TC	COP	TC	COP	Seasonal Efficiency HSPF
018-C	*PF1MNC019	18,000	TDR&TXV	13.00	11.55	17,900	3.44	10,900	2.38	7.8
	PF1MNC025	18,100	TDR&TXV	13.00	11.75	17,900	3.46	10,900	2.40	8.0
024-C	*PF1MNC025	23,600	TDR&TXV	13.00	11.80	23,400	3.50	13,700	2.34	8.0
	PF1MNC031	23,800	TDR&TXV	13.00	12.05	23,400	3.56	13,700	2.38	8.0
030-C	*PF1MNC031	29,400	TDR&TXV	13.00	11.20	29,600	3.40	18,000	2.36	8.0
	PF1MNC037	29,600	TDR&TXV	13.00	11.25	29,800	3.42	18,100	2.38	8.0
036-C	*PF1MNC037	35,000	TDR&TXV	13.00	11.35	35,600	3.62	22,400	2.56	8.0
	PF1MNC043	35,600	TDR&TXV	13.00	11.55	36,000	3.86	22,800	2.62	8.0
042-C	*PF1MNC043	41,000	TDR&TXV	13.00	11.25	42,000	3.58	27,200	2.62	8.0
	PF1MNC049	41,500	TDR&TXV	13.00	11.50	42,500	3.82	27,600	2.72	8.0
048-C	*PF1MNC049	48,000	TDR&TXV	13.00	11.20	49,000	3.62	31,400	2.66	8.0
	PF1MNC061	48,500	TDR&TXV	13.00	11.40	49,500	3.78	31,800	2.72	8.0
060-C	*PF1MNC061	54,000	TDR&TXV	13.00	11.20	55,000	3.54	30,200	2.42	8.0

* Outdoor section/indoor section combination tested in accordance with DOE test procedures for heat pumps. Ratings for other combinations are determined under DOE computer simulation procedures.

† Ratings are net values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:

Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor entering air temperature and 95°F (35°C) db air entering outdoor unit.

High-Temperature Heating Standard: 70°F (21°C) db indoor entering air temperature and 47°C (8°C) db 43°F (6°C) wb air entering outdoor unit.

Low-Temperature Heating Standard: 70°F (21°C) db indoor entering air temperature and 17°F (–9°C) db, 15°F (–10°C) wb air entering outdoor unit.

COP — Coefficient of Performance
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
TC — Total Capacity (Btuh)
TDR — Time-Delay Relay
TXV — Thermostatic Expansion Valve
SEER — Seasonal Energy Efficiency Ratio

DETAILED COOLING CAPACITIES*

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F														
		85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
PH13NR018-C Outdoor Section With PF1MNC019 Indoor Section																
525	57	16.32	16.32	1.35	15.74	15.74	1.52	15.13	15.13	1.70	14.50	14.50	1.89	13.84	13.84	2.10
	62	16.80	15.50	1.36	16.08	15.14	1.52	15.34	14.76	1.70	14.59	14.35	1.89	13.84	13.84	2.10
	67	18.48	13.00	1.37	17.69	12.67	1.53	16.87	12.32	1.71	16.02	11.96	1.91	15.14	11.59	2.12
	72	20.41	10.49	1.38	19.56	10.16	1.54	18.67	9.81	1.73	17.75	9.46	1.93	16.79	9.11	2.14
600	57	16.95	16.95	1.38	16.34	16.34	1.55	15.70	15.70	1.73	15.03	15.03	1.92	14.33	14.33	2.13
	62	17.17	16.57	1.38	16.44	16.16	1.55	15.70	15.70	1.73	15.03	15.03	1.92	14.33	14.33	2.13
	67	18.82	13.81	1.39	18.00	13.47	1.56	17.15	13.11	1.74	16.26	12.75	1.94	15.36	12.37	2.15
	72	20.78	10.97	1.40	19.90	10.64	1.57	18.97	10.29	1.75	18.01	9.93	1.96	17.03	9.57	2.17
675	57	17.49	17.49	1.41	16.84	16.84	1.58	16.17	16.17	1.76	15.47	15.47	1.96	14.74	14.74	2.17
	62	17.50	17.50	1.41	16.84	16.84	1.58	16.16	16.16	1.76	15.46	15.46	1.96	14.73	14.73	2.17
	67	19.07	14.58	1.42	18.23	14.23	1.59	17.35	13.87	1.77	16.44	13.49	1.97	15.51	13.11	2.18
	72	21.06	11.43	1.43	20.15	11.09	1.60	19.20	10.74	1.78	18.21	10.38	1.98	17.19	10.01	2.20

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling Capacity	Cooling Power	Indoor Section	Unit Size	Cooling Capacity	Cooling Power
PF1MNC	019	1.00	1.00	—	—	—	—
	025	1.01	0.99				

PH13NR024-C Outdoor Section With PF1MNC025 Indoor Section																
700	57	21.71	21.71	1.75	20.95	20.95	1.96	20.16	20.16	2.18	19.32	19.32	2.42	18.43	18.43	2.67
	62	22.19	20.84	1.75	21.28	20.36	1.96	20.33	19.84	2.18	19.33	19.33	2.42	18.43	18.43	2.67
	67	24.29	17.39	1.76	23.27	16.96	1.96	22.21	16.50	2.19	21.10	16.04	2.43	19.94	15.55	2.69
	72	26.63	13.84	1.76	25.54	13.42	1.97	24.38	12.97	2.20	23.17	12.51	2.45	21.91	12.02	2.71
800	57	22.47	22.47	1.79	21.67	21.67	1.99	20.82	20.82	2.22	19.93	19.93	2.46	19.00	19.00	2.72
	62	22.64	22.15	1.79	21.69	21.69	1.99	20.82	20.82	2.22	19.93	19.93	2.46	19.00	19.00	2.72
	67	24.65	18.42	1.80	23.60	17.99	2.00	22.50	17.52	2.23	21.35	17.04	2.47	20.16	16.53	2.73
	72	27.02	14.44	1.80	25.88	14.00	2.01	24.68	13.54	2.24	23.42	13.06	2.48	22.11	12.56	2.75
900	57	23.08	23.08	1.83	22.25	22.25	2.03	21.36	21.36	2.26	20.43	20.43	2.50	19.45	19.45	2.76
	62	23.08	23.08	1.83	22.24	22.24	2.03	21.36	21.36	2.26	20.43	20.43	2.50	19.45	19.45	2.76
	67	24.91	19.40	1.83	23.83	18.95	2.04	22.70	18.47	2.26	21.53	17.97	2.51	20.31	17.45	2.77
	72	27.29	14.98	1.84	26.11	14.53	2.05	24.88	14.06	2.27	23.58	13.57	2.52	22.23	13.05	2.79

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling Capacity	Cooling Power	Indoor Section	Unit Size	Cooling Capacity	Cooling Power
PF1MNC	025	1.00	1.00	—	—	—	—
	031	1.01	0.99				

See notes on page 12.

DETAILED COOLING CAPACITIES* Continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F														
		85			95			105			115			125		
		Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**
CFM	EWB	Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
PH13NR030-C Outdoor Section With PF1MNC031 Indoor Section																
875	57	26.91	26.91	2.31	25.95	25.95	2.58	24.95	24.95	2.87	23.89	23.89	3.19	22.78	22.78	3.52
	62	27.61	25.65	2.31	26.45	25.05	2.58	25.25	24.40	2.87	24.01	23.68	3.19	22.78	22.78	3.53
	67	30.25	21.47	2.31	28.96	20.92	2.58	27.61	20.35	2.88	26.21	19.76	3.20	24.74	19.14	3.54
	72	33.26	17.21	2.30	31.86	16.67	2.58	30.40	16.11	2.89	28.88	15.53	3.21	27.29	14.93	3.55
1000	57	27.87	27.87	2.35	26.86	26.86	2.63	25.80	25.80	2.92	24.69	24.69	3.24	23.51	23.51	3.58
	62	28.18	27.30	2.35	27.01	26.61	2.63	25.81	25.81	2.92	24.68	24.68	3.24	23.51	23.51	3.58
	67	30.74	22.75	2.35	29.40	22.20	2.63	28.00	21.61	2.93	26.55	21.01	3.24	25.04	20.37	3.59
	72	33.79	17.97	2.35	32.34	17.42	2.62	30.83	16.85	2.93	29.25	16.26	3.26	27.61	15.65	3.60
1125	57	28.67	28.67	2.40	27.61	27.61	2.67	26.50	26.50	2.97	25.33	25.33	3.29	24.10	24.10	3.63
	62	28.70	28.70	2.40	27.61	27.61	2.67	26.50	26.50	2.97	25.33	25.33	3.29	24.10	24.10	3.63
	67	31.11	24.00	2.39	29.73	23.42	2.67	28.30	22.82	2.97	26.81	22.20	3.29	25.26	21.54	3.63
	72	34.19	18.69	2.39	32.70	18.13	2.67	31.14	17.56	2.98	29.52	16.96	3.30	27.83	16.34	3.65

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling Capacity	Cooling Power	Indoor Section	Unit Size	Cooling Capacity	Cooling Power
PF1MNC	031	1.00	1.00	—	—	—	—
	037	1.01	1.00				

PH13NR036-C Outdoor Section With PF1MNC037 Indoor Section																
1050	57	32.83	32.83	2.78	31.68	31.68	3.06	30.48	30.48	3.36	29.22	29.22	3.69	27.89	27.89	4.05
	62	33.41	31.74	2.78	32.04	31.00	3.06	30.64	30.19	3.36	29.23	29.23	3.69	27.89	27.89	4.05
	67	36.53	26.43	2.80	35.00	25.79	3.08	33.41	25.12	3.39	31.75	24.43	3.72	30.02	23.70	4.07
	72	40.17	20.95	2.83	38.52	20.32	3.11	36.80	19.67	3.42	35.00	19.00	3.75	33.13	18.30	4.11
1200	57	33.92	33.92	2.85	32.71	32.71	3.13	31.44	31.44	3.44	30.11	30.11	3.77	28.70	28.70	4.13
	62	34.07	33.64	2.86	32.72	32.72	3.13	31.43	31.43	3.44	30.10	30.10	3.77	28.70	28.70	4.13
	67	37.02	28.02	2.87	35.43	27.36	3.15	33.79	26.68	3.46	32.08	25.96	3.79	30.30	25.22	4.14
	72	40.71	21.87	2.90	39.00	21.23	3.18	37.22	20.57	3.49	35.36	19.89	3.82	33.43	19.18	4.18
1350	57	35.10	35.10	2.84	33.84	33.84	3.12	32.51	32.51	3.43	31.12	31.12	3.76	29.65	29.65	4.12
	62	35.10	35.10	2.84	33.83	33.83	3.12	32.50	32.50	3.43	31.11	31.11	3.76	29.65	29.65	4.12
	67	37.68	29.85	2.86	36.06	29.18	3.14	34.37	28.47	3.44	32.63	27.74	3.77	30.81	26.96	4.13
	72	41.41	23.05	2.88	39.65	22.41	3.16	37.82	21.74	3.47	35.91	21.04	3.80	33.93	20.33	4.17

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling Capacity	Cooling Power	Indoor Section	Unit Size	Cooling Capacity	Cooling Power
PF1MNC	037	1.00	1.00	—	—	—	—
	043	1.02	1.00				

See notes on page 12.

DETAILED COOLING CAPACITIES* Continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F														
		85			95			105			115			125		
		Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**	Capacity MBtuh†		Total System kW**
CFM	EWB	Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
PH13NR042-C Outdoor Section With PF1MNC043 Indoor Section																
1225	57	38.29	38.29	3.34	36.90	36.90	3.66	35.46	35.46	4.01	33.97	33.97	4.40	32.41	32.41	4.83
	62	39.10	36.81	3.34	37.42	35.94	3.66	35.72	35.00	4.01	33.99	33.99	4.40	32.41	32.41	4.83
	67	42.89	30.66	3.38	41.00	29.86	3.70	39.05	29.04	4.05	37.05	28.20	4.44	34.98	27.33	4.87
	72	47.17	24.36	3.41	45.12	23.57	3.74	42.99	22.77	4.09	40.78	21.94	4.48	38.50	21.09	4.91
1400	57	39.61	39.61	3.44	38.13	38.13	3.76	36.60	36.60	4.11	35.01	35.01	4.50	33.35	33.35	4.93
	62	39.86	39.14	3.44	38.15	38.15	3.76	36.60	36.60	4.11	35.01	35.01	4.50	33.35	33.35	4.93
	67	43.50	32.52	3.47	41.53	31.69	3.79	39.51	30.85	4.14	37.44	29.98	4.53	35.29	29.11	4.96
	72	47.81	25.42	3.51	45.68	24.62	3.83	43.47	23.80	4.19	41.19	22.96	4.58	38.82	22.09	5.01
1575	57	40.68	40.68	3.53	39.13	39.13	3.85	37.52	37.52	4.21	35.84	35.84	4.60	34.09	34.09	5.03
	62	40.68	40.68	3.53	39.12	39.12	3.85	37.51	37.51	4.21	35.84	35.84	4.60	34.09	34.09	5.03
	67	43.92	34.26	3.56	41.91	33.42	3.88	39.83	32.55	4.23	37.69	31.66	4.62	35.50	30.75	5.05
	72	48.26	26.41	3.60	46.06	25.60	3.92	43.79	24.77	4.28	41.44	23.92	4.67	39.01	23.04	5.10

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling Capacity	Cooling Power	Indoor Section	Unit Size	Cooling Capacity	Cooling Power
PF1MNC	043	1.00	1.00	—	—	—	—
	049	1.01	0.99				

PH13NR048-C Outdoor Section With PF1MNC049 Indoor Section																
1400	57	44.11	44.11	3.77	42.59	42.59	4.22	40.99	40.99	4.71	39.29	39.29	5.23	37.49	37.49	5.79
	62	45.67	41.46	3.79	43.79	40.51	4.23	41.82	39.51	4.72	39.76	38.44	5.24	37.64	37.24	5.79
	67	50.07	34.89	3.83	48.00	33.99	4.28	45.83	33.06	4.77	43.55	32.09	5.30	41.14	31.07	5.86
	72	54.97	28.27	3.89	52.73	27.40	4.34	50.37	26.48	4.84	47.90	25.53	5.37	45.29	24.54	5.95
1600	57	45.87	45.87	3.84	44.26	44.26	4.29	42.56	42.56	4.78	40.76	40.76	5.31	38.85	38.85	5.87
	62	46.71	44.32	3.85	44.78	43.29	4.30	42.78	42.16	4.78	40.77	40.77	5.31	38.85	38.85	5.87
	67	51.05	37.04	3.90	48.90	36.12	4.35	46.64	35.17	4.84	44.27	34.18	5.37	41.78	33.14	5.93
	72	56.02	29.58	3.95	53.69	28.68	4.41	51.24	27.75	4.90	48.66	26.78	5.44	45.96	25.77	6.01
1800	57	47.35	47.35	3.91	45.66	45.66	4.36	43.87	43.87	4.85	41.98	41.98	5.38	39.98	39.98	5.95
	62	47.62	46.84	3.91	45.68	45.68	4.36	43.86	43.86	4.85	41.97	41.97	5.38	39.97	39.97	5.95
	67	51.80	39.09	3.96	49.57	38.15	4.41	47.24	37.18	4.90	44.81	36.16	5.43	42.25	35.10	5.99
	72	56.82	30.80	4.01	54.41	29.89	4.47	51.88	28.94	4.96	49.23	27.95	5.50	46.44	26.92	6.07

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling Capacity	Cooling Power	Indoor Section	Unit Size	Cooling Capacity	Cooling Power
PF1MNC	049	1.00	1.00	—	—	—	—
	061	1.01	0.99				

See notes on page 12.

DETAILED COOLING CAPACITIES* Continued

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F														
		85			95			105			115			125		
		Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System	Capacity MBtuh†		Total System
CFM	EWB	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**	Total	Sens‡	kW**
PH13NR060-C Outdoor Section With PF1MNC061 Indoor Section																
1750	57	51.29	51.29	4.31	49.44	49.44	4.77	47.46	47.46	5.27	45.34	45.34	5.82	43.06	43.06	6.40
	62	51.77	50.38	4.31	49.60	49.14	4.77	47.45	47.45	5.27	45.34	45.34	5.82	43.06	43.06	6.40
	67	56.50	41.92	4.36	54.00	40.88	4.82	51.38	39.78	5.32	48.61	38.64	5.86	45.68	37.43	6.45
	72	61.96	33.16	4.42	59.25	32.14	4.88	56.37	31.07	5.39	53.38	29.96	5.94	50.18	28.79	6.52
2000	57	53.11	53.11	4.40	51.13	51.13	4.86	49.02	49.02	5.37	46.78	46.78	5.92	44.37	44.37	6.50
	62	53.11	53.11	4.40	51.12	51.12	4.86	49.02	49.02	5.37	46.77	46.77	5.92	44.36	44.36	6.50
	67	57.34	44.66	4.45	54.75	43.59	4.91	52.04	42.47	5.41	49.19	41.30	5.95	46.17	40.05	6.53
	72	62.84	34.79	4.51	60.03	33.75	4.97	57.06	32.66	5.47	53.96	31.54	6.02	50.67	30.35	6.61
2250	57	54.60	54.60	4.50	52.52	52.52	4.96	50.30	50.30	5.46	47.94	47.94	6.01	45.42	45.42	6.60
	62	54.60	54.60	4.50	52.51	52.51	4.96	50.30	50.30	5.46	47.94	47.94	6.01	45.42	45.42	6.60
	67	57.96	47.26	4.53	55.31	46.17	4.99	52.53	45.01	5.49	49.61	43.80	6.04	46.54	42.49	6.62
	72	63.47	36.33	4.59	60.59	35.28	5.05	57.56	34.19	5.56	54.36	33.04	6.11	51.00	31.84	6.69

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Cooling		Indoor Section	Unit Size	Cooling	
		Capacity	Power			Capacity	Power
PF1MNC	061	1.00	1.00	—	—	—	—

NOTE: When the required data fall between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

* Detailed cooling capacities are based on indoor and outdoor unit at the same elevation and connected by 25 ft of tubing. If other than 25 ft of tubing is used and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

** System kW is total of indoor and outdoor unit kilowatts.

†† At TVA rating indoor condition (75°edb/63°ewb). All other indoor air temperatures are at 80°edb.

HEAT PUMP HEATING PERFORMANCE

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		–3			7			17			27			37			47			57			67		
		Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power
EDB	CFM	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†
PH13NR018-C Outdoor Section With PF1MNC019 Indoor Section																									
65	525	7.26	6.68	1.23	8.98	8.26	1.25	10.93	9.96	1.28	13.07	11.61	1.32	15.41	14.02	1.39	17.92	17.92	1.47	20.75	20.75	1.59	23.84	23.84	1.71
	600	7.39	6.80	1.24	9.14	8.40	1.26	11.11	10.13	1.28	13.26	11.78	1.32	15.62	14.21	1.38	18.13	18.13	1.47	20.97	20.97	1.58	23.59	23.59	1.66
	675	7.52	6.91	1.26	9.28	8.52	1.27	11.27	10.27	1.29	13.43	11.93	1.32	15.77	14.35	1.38	18.30	18.30	1.48	20.99	20.99	1.56	23.18	23.18	1.63
70	525	7.09	6.52	1.28	8.80	8.09	1.31	10.73	9.78	1.34	12.86	11.42	1.39	15.18	13.82	1.45	17.67	17.67	1.53	20.48	20.48	1.65	23.65	23.65	1.80
	600	7.22	6.64	1.30	8.95	8.22	1.32	10.90	9.94	1.34	13.05	11.59	1.38	15.40	14.01	1.44	17.90	17.90	1.52	20.70	20.70	1.64	23.61	23.61	1.74
	675	7.35	6.76	1.31	9.09	8.35	1.33	11.06	10.08	1.35	13.22	11.74	1.38	15.57	14.17	1.44	18.07	18.07	1.53	20.87	20.87	1.65	23.34	23.34	1.71
75	525	6.90	6.35	1.34	8.62	7.92	1.37	10.53	9.60	1.41	12.65	11.24	1.45	14.95	13.61	1.51	17.44	17.44	1.60	20.20	20.20	1.72	23.33	23.33	1.87
	600	7.04	6.48	1.36	8.76	8.05	1.38	10.70	9.75	1.41	12.84	11.41	1.44	15.17	13.80	1.50	17.67	17.67	1.59	20.44	20.44	1.70	23.51	23.51	1.82
	675	7.17	6.59	1.37	8.90	8.18	1.39	10.85	9.89	1.41	13.01	11.56	1.45	15.35	13.97	1.50	17.84	17.84	1.59	20.62	20.62	1.70	23.39	23.39	1.79

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating Capacity	Heating Power	Indoor Section	Unit Size	Heating Capacity	Heating Power
PF1MNC	019	1.00	1.00	—	—	—	—
	025	1.00	0.99				

PH13NR024-C Outdoor Section With PF1MNC025 Indoor Section																									
65	700	8.90	8.19	1.52	11.19	10.28	1.57	13.69	12.49	1.63	16.56	14.71	1.70	19.78	18.00	1.78	23.37	23.37	1.89	27.31	27.31	2.02	31.44	31.44	2.14
	800	9.09	8.37	1.55	11.39	10.46	1.59	13.92	12.69	1.64	16.81	14.93	1.70	20.06	18.26	1.78	23.70	23.70	1.88	27.65	27.65	1.99	31.22	31.22	2.07
	900	9.27	8.53	1.58	11.57	10.64	1.62	14.13	12.88	1.66	17.04	15.13	1.71	20.31	18.48	1.79	23.96	23.96	1.88	27.64	27.64	1.96	30.85	30.85	2.04
70	700	8.66	7.97	1.58	10.96	10.08	1.64	13.48	12.29	1.70	16.31	14.49	1.77	19.52	17.76	1.86	23.06	23.06	1.97	27.01	27.01	2.11	31.27	31.27	2.25
	800	8.85	8.14	1.61	11.17	10.26	1.66	13.70	12.49	1.72	16.57	14.72	1.78	19.80	18.02	1.86	23.40	23.40	1.96	27.35	27.35	2.08	31.23	31.23	2.18
	900	9.03	8.31	1.64	11.36	10.44	1.69	13.90	12.67	1.73	16.80	14.92	1.79	20.05	18.25	1.86	23.68	23.68	1.96	27.57	27.57	2.06	30.98	30.98	2.14
75	700	8.39	7.72	1.65	10.73	9.86	1.71	13.26	12.09	1.78	16.06	14.27	1.85	19.23	17.50	1.95	22.77	22.77	2.06	26.72	26.72	2.20	31.04	31.04	2.36
	800	8.59	7.90	1.67	10.93	10.05	1.73	13.48	12.29	1.79	16.32	14.50	1.86	19.52	17.77	1.94	23.10	23.10	2.04	27.06	27.06	2.17	31.15	31.15	2.29
	900	8.77	8.07	1.71	11.13	10.22	1.76	13.69	12.48	1.81	16.55	14.70	1.87	19.79	18.01	1.95	23.38	23.38	2.04	27.35	27.35	2.16	31.03	31.03	2.25

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating Capacity	Heating Power	Indoor Section	Unit Size	Heating Capacity	Heating Power
PF1MNC	025	1.00	1.00	—	—	—	—
	031	1.00	0.98				

PH13NR030-C Outdoor Section With PF1MNC031 Indoor Section																									
65	875	12.07	11.11	2.02	14.89	13.68	2.07	18.02	16.43	2.13	21.50	19.10	2.22	25.36	23.08	2.33	29.61	29.61	2.46	34.49	34.49	2.64	39.49	39.49	2.79
	1000	12.29	11.30	2.04	15.11	13.89	2.09	18.28	16.66	2.14	21.78	19.35	2.22	25.66	23.35	2.32	29.95	29.95	2.44	34.75	34.75	2.59	39.05	39.05	2.71
	1125	12.48	11.49	2.07	15.31	14.07	2.11	18.50	16.87	2.16	22.03	19.57	2.23	25.92	23.59	2.32	30.24	30.24	2.45	34.67	34.67	2.55	38.50	38.50	2.67
70	875	11.79	10.84	2.10	14.64	13.45	2.16	17.74	16.18	2.23	21.19	18.82	2.32	25.04	22.79	2.43	29.25	29.25	2.57	34.05	34.05	2.76	39.31	39.31	2.94
	1000	12.00	11.04	2.12	14.86	13.66	2.18	18.00	16.41	2.23	21.50	19.09	2.32	25.36	23.08	2.42	29.60	29.60	2.55	34.47	34.47	2.73	39.13	39.13	2.85
	1125	12.20	11.23	2.15	15.07	13.85	2.20	18.23	16.62	2.25	21.75	19.31	2.33	25.64	23.33	2.42	29.89	29.89	2.55	34.59	34.59	2.68	38.71	38.71	2.80
75	875	11.47	10.55	2.18	14.37	13.20	2.26	17.46	15.92	2.33	20.90	18.56	2.42	24.72	22.50	2.54	28.89	28.89	2.69	33.63	33.63	2.87	39.03	39.03	3.09
	1000	11.69	10.75	2.21	14.60	13.41	2.27	17.71	16.15	2.33	21.19	18.82	2.42	25.04	22.79	2.53	29.25	29.25	2.66	34.04	34.04	2.84	39.07	39.07	2.99
	1125	11.90	10.95	2.24	14.81	13.61	2.30	17.95	16.36	2.35	21.44	19.04	2.42	25.31	23.03	2.53	29.54	29.54	2.66	34.34	34.34	2.82	38.83	38.83	2.94

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating Capacity	Heating Power	Indoor Section	Unit Size	Heating Capacity	Heating Power
PF1MNC	031	1.00	1.00	—	—	—	—
	037	1.01	1.00				

See notes on page 15.

HEAT PUMP HEATING PERFORMANCE Continued

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		–3			7			17			27			37			47			57			67		
		Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power
EDB	CFM	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†
PH13NR036-C Outdoor Section With PF1MNC037 Indoor Section																									
65	1050	15.65	14.40	2.44	19.05	17.50	2.45	22.71	20.71	2.46	26.69	23.70	2.49	31.14	28.33	2.54	36.05	36.05	2.60	41.07	41.07	2.63	45.66	45.66	2.67
	1200	15.96	14.68	2.49	19.37	17.80	2.49	23.07	21.03	2.49	27.06	24.04	2.51	31.56	28.72	2.54	36.43	36.43	2.57	40.90	40.90	2.59	45.03	45.03	2.61
	1350	16.24	14.95	2.54	19.66	18.07	2.53	23.39	21.32	2.52	27.42	24.35	2.54	31.92	29.05	2.56	36.52	36.52	2.57	40.50	40.50	2.58	44.36	44.36	2.58
70	1050	15.30	14.08	2.53	18.74	17.22	2.55	22.40	20.42	2.56	26.35	23.40	2.59	30.75	27.98	2.64	35.60	35.60	2.70	40.87	40.87	2.75	45.63	45.63	2.79
	1200	15.61	14.36	2.58	19.07	17.52	2.59	22.74	20.73	2.59	26.74	23.74	2.61	31.17	28.37	2.64	36.07	36.07	2.70	40.82	40.82	2.70	45.15	45.15	2.73
	1350	15.91	14.64	2.63	19.36	17.79	2.63	23.06	21.03	2.62	27.07	24.04	2.63	31.54	28.70	2.66	36.36	36.36	2.68	40.59	40.59	2.69	44.60	44.60	2.70
75	1050	14.93	13.74	2.63	18.42	16.92	2.65	22.10	20.15	2.67	26.05	23.13	2.70	30.37	27.64	2.75	35.15	35.15	2.81	40.54	40.54	2.87	45.53	45.53	2.91
	1200	15.25	14.03	2.67	18.74	17.22	2.69	22.44	20.46	2.69	26.41	23.46	2.71	30.79	28.02	2.75	35.63	35.63	2.80	40.70	40.70	2.82	45.19	45.19	2.85
	1350	15.54	14.30	2.73	19.04	17.50	2.73	22.75	20.74	2.72	26.74	23.75	2.74	31.16	28.36	2.77	36.04	36.04	2.80	40.60	40.60	2.81	44.75	44.75	2.82

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating Capacity	Heating Power	Indoor Section	Unit Size	Heating Capacity	Heating Power
PF1MNC	037	1.00	1.00	—	—	—	—
	043	1.01	0.95				

PH13NR042-C Outdoor Section With PF1MNC043 Indoor Section																									
65	1225	19.66	18.08	2.78	23.46	21.55	2.85	27.54	25.11	2.92	32.06	28.48	3.02	37.04	33.71	3.15	42.52	42.52	3.31	48.83	48.83	3.53	55.14	55.14	3.71
	1400	20.03	18.43	2.84	23.84	21.91	2.90	27.96	25.49	2.96	32.53	28.89	3.05	37.57	34.19	3.16	43.09	43.09	3.31	49.22	49.22	3.48	54.83	54.83	3.65
	1575	20.39	18.76	2.91	24.21	22.25	2.95	28.36	25.85	3.01	32.95	29.27	3.09	38.02	34.60	3.20	43.58	43.58	3.35	49.23	49.23	3.48	54.32	54.32	3.64
70	1225	19.31	17.77	2.89	23.16	21.29	2.96	27.20	24.80	3.04	31.65	28.11	3.14	36.59	33.30	3.27	42.00	42.00	3.44	48.22	48.22	3.66	54.81	54.81	3.87
	1400	19.70	18.12	2.95	23.55	21.64	3.01	27.62	25.19	3.08	32.12	28.52	3.17	37.11	33.77	3.29	42.57	42.57	3.44	48.83	48.83	3.64	54.76	54.76	3.80
	1575	20.06	18.46	3.01	23.92	21.98	3.06	28.01	25.54	3.12	32.56	28.92	3.21	37.57	34.18	3.32	43.06	43.06	3.47	49.05	49.05	3.62	54.42	54.42	3.79
75	1225	18.92	17.41	2.99	22.86	21.01	3.08	26.92	24.54	3.17	31.29	27.79	3.27	36.17	32.92	3.41	41.50	41.50	3.58	47.64	47.64	3.80	54.42	54.42	4.05
	1400	19.32	17.77	3.05	23.25	21.37	3.13	27.32	24.91	3.20	31.74	28.19	3.29	36.67	33.37	3.42	42.07	42.07	3.57	48.29	48.29	3.79	54.57	54.57	3.97
	1575	19.69	18.12	3.12	23.62	21.70	3.18	27.69	25.25	3.24	32.16	28.56	3.33	37.12	33.78	3.44	42.55	42.55	3.59	48.71	48.71	3.78	54.41	54.41	3.94

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating Capacity	Heating Power	Indoor Section	Unit Size	Heating Capacity	Heating Power
PF1MNC	043	1.00	1.00	—	—	—	—
	049	1.01	0.95				

PH13NR048-C Outdoor Section With PF1MNC049 Indoor Section																									
65	1400	22.35	20.56	3.08	26.98	24.79	3.19	31.80	28.99	3.30	37.20	33.04	3.43	43.15	39.27	3.59	49.62	49.62	3.78	57.14	57.14	4.05	65.61	65.61	4.39
	1600	22.67	20.85	3.10	27.30	25.08	3.19	32.16	29.32	3.28	37.61	33.41	3.39	43.64	39.71	3.53	50.20	50.20	3.71	57.82	57.82	3.96	65.86	65.86	4.18
	1800	22.94	21.11	3.12	27.58	25.34	3.19	32.48	29.61	3.28	37.99	33.74	3.38	44.03	40.07	3.51	50.65	50.65	3.68	58.28	58.28	3.92	65.38	65.38	4.07
70	1400	21.81	20.06	3.22	26.54	24.39	3.34	31.40	28.63	3.46	36.72	32.62	3.60	42.61	38.78	3.76	49.00	49.00	3.96	56.41	56.41	4.24	64.78	64.78	4.59
	1600	22.15	20.38	3.23	26.87	24.70	3.34	31.75	28.95	3.44	37.14	32.98	3.56	43.10	39.22	3.71	49.58	49.58	3.89	57.11	57.11	4.14	65.41	65.41	4.41
	1800	22.44	20.65	3.25	27.16	24.96	3.35	32.04	29.22	3.43	37.49	33.29	3.54	43.50	39.58	3.68	50.05	50.05	3.86	57.62	57.62	4.10	65.29	65.29	4.28
75	1400	21.27	19.57	3.35	26.07	23.96	3.49	31.01	28.27	3.62	36.23	32.18	3.77	42.08	38.29	3.95	48.39	48.39	4.16	55.69	55.69	4.43	63.94	63.94	4.79
	1600	21.60	19.87	3.36	26.41	24.27	3.49	31.35	28.59	3.60	36.65	32.55	3.73	42.56	38.73	3.89	48.96	48.96	4.08	56.39	56.39	4.33	64.74	64.74	4.66
	1800	21.87	20.12	3.39	26.71	24.55	3.50	31.65	28.85	3.60	37.01	32.87	3.71	42.96	39.09	3.86	49.44	49.44	4.04	56.94	56.94	4.28	65.02	65.02	4.51

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating Capacity	Heating Power	Indoor Section	Unit Size	Heating Capacity	Heating Power
PF1MNC	049	1.00	1.00	—	—	—	—
	061	1.01	0.97				

See notes on page 15.

HEAT PUMP HEATING PERFORMANCE Continued

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		–3			7			17			27			37			47			57			67		
		Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power	Capacity MBtuh		Total Power
EDB	CFM	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†	Total	Integ*	kW†
PH13NR060-C Outdoor Section With PF1MNC061 Indoor Section																									
65	1750	19.21	17.67	3.07	24.56	22.57	3.28	30.59	27.89	3.50	37.63	33.42	3.74	46.04	41.90	4.03	55.76	55.76	4.35	66.07	66.07	4.62	77.07	77.07	4.99
	2000	19.51	17.95	3.11	24.89	22.87	3.30	30.95	28.22	3.51	38.11	33.84	3.74	46.63	42.44	4.03	55.94	55.94	4.26	65.71	65.71	4.55	72.45	72.45	4.76
	2250	19.79	18.21	3.15	25.19	23.15	3.34	31.27	28.51	3.54	38.52	34.21	3.77	47.03	42.79	4.02	55.81	55.81	4.24	65.23	65.23	4.52	67.81	67.81	4.61
70	1750	18.73	17.23	3.19	24.14	22.18	3.42	30.20	27.54	3.66	37.10	32.95	3.91	45.43	41.34	4.21	55.00	55.00	4.55	65.73	65.73	4.85	76.87	76.87	5.24
	2000	19.04	17.52	3.23	24.47	22.49	3.45	30.56	27.87	3.67	37.56	33.36	3.91	45.98	41.84	4.20	55.61	55.61	4.51	65.54	65.54	4.77	74.11	74.11	5.06
	2250	19.33	17.78	3.27	24.78	22.77	3.49	30.89	28.16	3.70	37.98	33.73	3.93	46.44	42.26	4.21	55.63	55.63	4.45	65.18	65.18	4.74	70.25	70.25	4.91
75	1750	18.20	16.75	3.31	23.67	21.75	3.56	29.78	27.15	3.82	36.61	32.52	4.09	44.75	40.72	4.40	54.30	54.30	4.76	65.26	65.26	5.12	76.55	76.55	5.50
	2000	18.52	17.04	3.35	24.02	22.07	3.59	30.15	27.49	3.83	37.03	32.89	4.09	45.32	41.24	4.38	54.94	54.94	4.72	65.28	65.28	5.00	76.10	76.10	5.38
	2250	18.81	17.31	3.40	24.33	22.36	3.63	30.48	27.79	3.86	37.42	33.24	4.10	45.81	41.68	4.39	55.30	55.30	4.69	65.04	65.04	4.96	72.44	72.44	5.22

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Unit Size	Heating		Indoor Section	Unit Size	Heating	
		Capacity	Power			Capacity	Power
PF1MNC	061	1.00	1.00	—	—	—	—

NOTE: When the required data fall between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

* The Btuh heating capacity values shown are net "integrated" values from which the defrost effect has been subtracted. The Btuh heating from supplement heaters should be added to those values to obtain total system capacity.

† The kW values include the compressor, outdoor fan motor, and indoor blower motor. The kW from supplement heaters should be added to these values to obtain total system kilowatts.

EDB = Entering Dry Bulb

PH13

SYSTEM DESIGN

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
2. Minimum outdoor operating air temperature for cooling mode without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature for cooling mode is 115°F (46.1°C).
4. Minimum outdoor operating air temperature for heating mode is –30°F (–34.4°C).
5. Maximum outdoor operating air temperature for heating mode is 66°F (18.9°C).
6. For reliable operation, unit should be level in all horizontal planes.
7. Maximum elevation of indoor coil above or below base of outdoor unit is: indoor coil above = 60 ft, indoor coil below = 200 ft.
8. For interconnecting refrigerant tube lengths greater than 80 ft horizontal, or 20 ft vertical differential, consult Long-Line Application Guideline available from equipment distributor.
9. If ANY refrigerant tubing is buried, provide a minimum 6-in. vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36-in. may be buried without further considerations.
10. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
11. Mixmatches of indoor coil capacity more than 1 size larger than outdoor unit capacity may result in inadequate indoor comfort.

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